ARIZONA CORPORATION COMMISSION

DAVID RABER
Director, Safety Division

ORIGINAL

Staff Memorandum

To: THE COMMISSION

DOCKET NO. RR-03639A-08-0037

From: Safety Division

Date: September 26, 2008

RE: IN THE MATTER OF THE APPLICATION OF THE UNION PACIFIC RAILROAD COMPANY TO ALTER FOUR CROSSINGS OF THE UNION PACIFIC RAILROAD AT COCHIE CANYON (WEST MARANA), TANGERINE, CORTARO FARMS, AND INA ROADS.

Background

On January 17, 2008 the Union Pacific Railroad Company ("Railroad") filed with the Arizona Corporation Commission ("Commission") an application for approval for the Railroad to alter four crossings of the Railroad in Pima County ("County"). Union Pacific's filing in this application requests approval for the Railroad to add a second main track, twenty feet from the center of the existing main track at four crossings in the jurisdiction of the Town of Marana (Town), at Cochie Canyon Road (formerly Marana Road), AAR/DOT No. 922-399-X; Tangerine Road, AAR/DOT No. 741-088V; Cortaro Farms Road, AAR/DOT No. 741-098-B and Ina Road, AAR/DOT No. 741-101-G. This application is part of the Railroad's double tracking effort for their Sunset Route across Arizona.

In Commission Decision No.65987 dated 6/17/03, flashing lights, automatic gates and bells were installed at the Cochie Canyon crossing. In Decision No. 46978 dated 5/24/76, flashing lights, automatic gates and bells were installed at the Tangerine Road crossing. In Decision No. 46983 dated 5/24/76, flashing lights, automatic gates and bells were installed at Cortaro Farms Road crossing. Commission records do not indicate a Decision approving the installation of flashing lights, automatic gates and bells at Ina Road. However, inventory records do indicate the presence of flashing lights, automatic gates and bells as early as 1974.

On March 1, 2007, Staff, the Railroad, County, and the Town participated in diagnostic reviews of the proposed improvements at Cochie Canyon, Tangerine, Cortaro Farms and Ina Roads. All parties present were in agreement with the proposed improvements at the crossings. The following is a break down of each of the four crossings in this application, including information about each crossing that was provided to Staff by the Railroad and its contractors.

Geographical Information

All four crossings in this application are located within Pima County, in the Town of Marana. According to 2006 estimates, the population of the Town is 33,000. Marana was the fourth fastest-growing municipality among all cities and towns in Arizona of any size between 1990 and 2000. The Town extends along Interstate 10 (I-10), from the line between Pinal and Pima County to the Tucson city line, with the exception of the area around the unincorporated community of Rillito.

The rail line runs in a south-east to north-west direction, parallel to both the Casa Grande Highway and I-10. The first crossing (starting at the most western end and working east) is the Cochie Canyon Road crossing, which runs in an east to west direction. The area surrounding this crossing is both new residential and farmland. Cochie Canyon Road does have an interchange at I-10. From Cochie Canyon to the east 4.05 miles is Tangerine Road which also runs in an east to west direction. The area surrounding this crossing is mostly agricultural with moderate residential development approximately 3-5 miles to the east. Tangerine Road also has an interchange with I-10, which allows east or westbound access to the freeway. From Tangerine Road to the east 6.27 miles is Cortaro Farms Road which runs in an east-west direction. The area surrounding this crossing is a mix of commercial and residential development with an interchange at I-10. From Cortaro Farms Road to the east 2.06 miles is Ina Road. Ina Road is a major east to west arterial roadway and carries the most traffic of any of the four crossings. The area surrounding the Ina Road crossing is predominately commercial development. Ina Road has an I-10 interchange as well. **(See Appendix "A")**

Cochie Canyon Road

The proposed second main track at this crossing will be located north of the existing main track. The Railroad will re-profile a portion of the four lane urban asphalt road to meet the new tracks. The Railroad's proposed upgrades will replace the existing incandescent flashing lights, gate mechanisms, bells and detection circuitry, with the latest in industry standards to include: 12 inch LED flashing lights, automatic gates, bells, and constant warning time circuitry. The automatic gates will be installed at the curbside and in the existing roadway raised median. A new concrete crossing surface will be added, along with replacing any impacted pavement markings. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the state. The estimated cost of the proposed railroad crossing upgrade is $392,640. The Railroad is paying for the entire cost of the crossing improvements, broken down by signal and crossing surface work, with the signal work costing $300,000 and the crossing surface $92,640.

Traffic data for Cochie Canyon was provided to the Railroad and its contractor HDR, by Keith Brann, Assistant Public Works Director for the Town of Marana. The data provided showed the Average Daily Traffic (ADT) for 2006 to be 4,300 vpd. Data provided indicated the estimated ADT for the year 2030 to be 29,200 vpd. The current

Level of Service ("LOS") for this four lane road is LOS A for both east and westbound traffic.

Note: The American Association of State Highway and Transportation Officials (AASHTO) Geometric Design of Highways and Streets, 2004, states that the Level of Service characterizes the operating conditions on a facility in terms of traffic performance measures related to speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. This is a measure of roadway congestion ranging from LOS A--least congested--to LOS F--most congested. LOS is one of the most common terms used to describe how "good" or how "bad" traffic is projected to be. All current and estimated future traffic projections, along with the Level of Service conditions for all four crossings in this application were verified by Staff with Keith Brann in September 2008.

The posted speed limit on Cochie Canyon Road is 40 MPH. Commission Rail Safety Section records, as well as Federal Railroad Administration ("FRA") accident/incident records indicate no accidents at this crossing.

Alternative routes from this crossing are as follows; to the west 5.40 miles to Missile Base Road, and to the east 4.03 miles to Tangerine Road which are at-grade crossings.

Tangerine Road

The proposed second main track at this crossing will be north of the existing main track. The Railroad will re-profile a portion of the two lane asphalt road to meet the new track. The Railroad's proposed upgrades will replace the existing incandescent flashing lights, gate mechanisms, bells and detection circuitry, with the latest in industry standards to include: 12 inch LED flashing lights, gates, bells, and constant warning time circuitry. A new concrete crossing surface will be added, along with replacing any impacted pavement markings. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the state. The estimated cost of the proposed railroad crossing upgrade is $279,824. The Railroad is paying for the entire cost of the crossing improvements, broken down by signal and crossing surface improvements, with the signal improvements costing $248,944, and the crossing surface $30,880.

Traffic data was provided by Keith Brann of the Town. The estimated ADT for Tangerine Road is 8,750 vpd, which was done in the year 2006. Traffic projections for the year 2030 were estimated to be 37,800 vpd. The current Level of Service for the two lane road is LOS A for both east and westbound traffic.

The posted speed limit on this road is 40 MPH. Commission Rail Safety Section records, as well as FRA accident/incident records indicate no accidents at this crossing.

Alternative routes from this crossing are as follows; to the west 4.03 miles to Cochie Canyon Road and to the east 4.73 miles to Camino de Manana Road which are at-grade crossings.

Cortaro Farms Road

The proposed second main track at this crossing will be north of the existing main track. The Railroad will re-profile a portion of the four lane urban asphalt road to meet the new track. The Railroad's proposed upgrades will replace the existing incandescent flashing lights, gate mechanisms, bells and detection circuitry, with the latest in industry standards to include: 12 inch LED flashing lights, automatic gates, bells, and constant warning time circuitry. The automatic gates will be installed at the curbside and in the existing roadway raised median. An extra indication, consisting of two 12 inch LED flashing lights will also be added for motorists approaching the crossing from the N. Casa Grande Highway which parallels the tracks just south of the crossing. A new concrete crossing surface will be added, along with replacing any impacted pavement markings. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the state. The estimated cost of the proposed railroad crossing upgrade is $471,008. The Railroad is paying for the entire cost of the crossing improvements, broken down by signal and crossing surface improvements, with the signal work costing $ 378,368, and the crossing surface $92,640.

Traffic data provided by Keith Brann of the Town estimated the ADT for this crossing to be 24,000 vpd. The traffic estimate was done in 2006. Traffic projections for Cortaro Farms Road for the year 2030 are estimated to be 36,900 vpd. The current Level of Service for the four lane road is LOS F, for both east and westbound traffic.

The posted speed limit is 35 MPH. Commission Rail Safety Section records, as well as FRA accident/incident records indicate two accidents at this crossing. The first accident occurred on 7/24/2002 which resulted in two injuries and no fatalities. Records indicate that the driver of the vehicle drove around the downed gates and was struck by the train. The second accident occurred on 6/06/2004 with no injuries or fatalities. Records indicate that the driver in this accident ran into the side of the train. Records indicate the warning devices were reported to be working as intended in both accidents.

Alternative routes from this crossing are as follows; to the west 1.59 miles to Camino De Manana Road and to the east 1.37 miles to Massingale Road which are at-grade crossings.

Ina Road

The proposed second main track at this crossing will be north of the existing main track. The Railroad will re-profile a portion of the four lane urban asphalt road to meet the new track. The Railroad's proposed upgrades will replace the existing incandescent flashing lights, gate mechanisms, bells and detection circuitry, with the latest in industry standards to include: 12 inch LED flashing lights, automatic gates, bells, constant warning time circuitry and cantilevers with 12 inch LED flashing lights for east and westbound traffic. The automatic gates will be installed at the curbside and in the existing roadway raised median. An extra indication, consisting of two 12 inch LED flashing lights will also be added for motorists approaching the crossing from the N. Casa

Grande Highway which parallels the tracks just south of the crossing. A new concrete crossing surface will be added, along with replacing any impacted pavement markings. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the state. The estimated cost of the proposed railroad crossing upgrade is $482,848. The Railroad is paying for the entire cost of the crossing improvements, broken down by signal and crossing surface improvements, with the signal work costing $ 374,768 and the crossing surface $108,080.

The Railroad will install cantilevers with 12 inch LED flashing lights for east and westbound traffic at Ina Road prior to the double tracking project, as required by an ADOT Section 130 project. The installation of the cantilevers is estimated to be completed by November of 2008.

Traffic data provided by Keith Brann of the Town estimated the ADT for this crossing to be 35,400 vpd. The traffic estimate was done in 2006. Traffic projections for this crossing for the year 2030 are estimated to be 44,400 vpd. The current LOS for this four lane road is LOS D for eastbound commuter traffic in the morning peak hours and LOS C during afternoon peak hour travel. The westbound direction operates at LOS B during the morning peak hours and LOS F for the afternoon peak hour travel.

The posted speed limit for Ina Road is 45 MPH. Commission Rail Safety Section records, as well as FRA accident/incident records indicate seven accidents at this crossing. The first accident occurred on 7/09/1976. Records indicate that a train struck an auto at the crossing with no injuries or fatalities reported. A second accident occurred on 10/11/1976, in which the driver drove around the downed gate arms and was struck by a train. No injuries or fatalities occurred. The third accident occurred on 11/26/1991, in which the driver stopped on the tracks and was struck by a train. No injuries or fatalities were reported. The fourth accident occurred on 2/15/1997, when a train struck an abandoned golf cart on the tracks. No injuries or fatalities occurred. A fifth accident occurred on 11/29/1999, when an auto stopped on the tracks and was struck by a train. One injury was reported in this accident. On 2/22/2001, the 6th accident occurred when an auto stopped on the tracks and was struck by a train while the gate arms were down. No injuries or fatalities occurred. The last accident occurred on 6/29/2003 with no injuries or fatalities reported. The motorist drove around the downed gate arms and ran into the side of the train. Records indicate the warning devices were reported to be working as intended in all seven accidents.

Alternative routes from this crossing are as follows; to the west .65 miles to Massingale Road, and to the east 1.32 miles to Orange Grove Road. Massingale Road is an at-grade crossing, while Orange Grove Road is an underpass at the tracks.

Train Data

Data provided by the railroad regarding train movements through these four crossings are as follows, and are the same for all four crossings:

Train Count: 48 total average trains per day (46 freight, and 2 passenger trains)
Train Speed: 79 mph passenger / 70 mph freight
Thru Freight/Switching Moves: All train movements through these crossings are thru movements with no switching operations, according to Union Pacific, Manager of Train Operations, Rob Henderson. These crossings are used by Amtrak twice per day, three times per week.

Schools and Bus Routes

There are three schools in Pima County & the Town of Marana within the area of these four crossings in this application. They are:

- ✓ Marjorie W. Estes Elem. School @ 11279 W. Grier Rd, Marana, AZ 85653
- ✓ Marana Middle School @ 11279 W. Grier Rd, Marana, AZ 85653
- ✓ Marana High School @ 12000 W. Emigh Road, Tucson, AZ 85743.

Per Alisha Meza, Operations Manager of Transportation for Marana Unified School District, no school buses currently cross Cochie Canyon Road. Currently, bus trips combined cross Tangerine Road at least 16 times per day, Cortaro Farms Road a minimum of 36 times per day and Ina Road at least 8 times per day. According to Ms. Meza, there haven't been any complaints from bus drivers regarding warning devices malfunctioning at any of the three crossings used by the drivers. She also indicated, Operation Lifesaver has given several presentations to their bus drivers during the last three years. This information was verified by Staff in September 2008.

Hospitals

The nearest hospital to these crossings is North West Medical Center in Marana. The following are the distances from the crossings to the hospital:

- Cochie Canyon – 8.8 miles
- Tangerine – 4.87 miles
- Cortaro Farms – 1.48 miles
- Ina - 3 miles

Hazardous Materials

The railroad gave the following response when asked about hazardous materials crossing these three crossings:

Union Pacific has been unable to obtain any information responsive to this request. It is Union Pacific's understanding that any vehicle carrying hazardous materials may utilize public crossings unless otherwise posted, but Union Pacific

knows of no way it can investigate or determine whether such vehicles use these crossings or with what frequency.

Zoning

Staff requested the Railroad provide information regarding the type of zoning in adjacent areas from the crossing. The following was their response:

Union Pacific believes that the second part of CW 1.7 calls for speculation as to whether new housing developments, industrial parks, or other developments will occur in the future. In addition, Union Pacific does not have access to such information, but instead must rely on information provided by others. With those caveats, Union Pacific responds as follows:

Pima Association of Governments has a 2007 Land Use Map that matches the field diagnostic observations. The observed land uses from the field diagnostics are shown below:

Crossing	*2007 Observed Land Use*	*2007 Existing Pima County Land Use*
Marana Road	*Agricultural/Residential*	*Agricultural/Ranching*
Tangerine Road	*Agricultural/Residential*	*Agricultural/Ranching Low Residential*
Cortaro Farms Road	*Commercial*	*Commercial / Medium Residential*
Ina Road	*Commercial*	*Commercial*

Pima Association of Governments planning departments can better answer the question of future developments. They review development impact studies and regulate zoning.

Spur Lines

The Union Pacific gave the following answer regarding spur lines located in the area:

Using the definition of a "spur line" or "spur track" as "a stub track of indefinite length diverging from a main track or other track," ACC Regulation R14-5-101(20), no spur lines have been removed within the last three years inside a 10-mile radius of any crossings covered in this application.

FHWA Guidelines Regarding Grade Separation

The Federal Highway Administration (FHWA) Railroad-Highway Grade Crossing Handbook (Revised Second Edition August 2007) provides nine criteria for determining whether highway-rail crossings should be considered for grade separation or otherwise eliminated across the railroad right of way. The Crossing Handbook indicates

that grade separation or crossing elimination should be considered whenever one or more of the nine conditions are met. The nine criteria are applied to this crossing application as follows:

		Cochie Canyon	Tangerine	Cortaro Farms	Ina
The highway is a part of the designated Interstate Highway System	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030	No	No	No	No
The highway is otherwise designed to have full controlled access	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030	No	No	No	No
The posted highway speed equals or exceeds 70 mph	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030	No	No	No	No
AADT exceeds 100,000 in urban areas or 50,000 in rural areas	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030	No	No	No	No
Maximum authorized train speed exceeds 110 mph	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030	No	No	No	No
An average of 150 or more trains per day or 300 million gross tons/year	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030[1]	**Yes**	**Yes**	**Yes**	**Yes**
Crossing exposure (trains/day x AADT) exceeds 1M in urban or 250k in rural; or passenger train crossing exposure exceeds 800k in urban or 200k in rural	Crossing Currently meets the criteria[2]	No	No	**Yes**	**Yes**
	Crossing meets the criteria by 2030[3]	**Yes**	**Yes**	**Yes**	**Yes**
Expected accident frequency for active devices with gates, as calculated by the US DOT Accident Prediction Formula including five-year accident history, exceeds 0.5	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030	Unknown	Unknown	Unknown	Unknown
Vehicle delay exceeds 40 vehicle hours per day	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030[4]	**Yes**	**Yes**	**Yes**	**Yes**

N/A = Information was not available.
This table utilizes the most recent projected ADT data as follows: Cochie Canyon –29,200 vpd (2030), Tangerine – 37,800 vpd (2030), Cortaro Farms – 36,900 vpd (2030), Ina – 44,400 vpd (2030).
[1]The Railroad is projected to exceed 300 million gross tons as of 2016. This projection is based on the fact that the Railroad is currently exceeding 217 million gross tons with 46 trains per day and is projected to run twice the number of trains (at lengths of up to 8,000 feet instead of the current length of 6,000 feet) by 2016.
[2] The current crossing exposure for Cortaro Farms – 1.2 million and for Ina is 1.7 million.
[3]The projected crossing exposures utilizing the most recent projected vpd data are as follows: Cochie Canyon – 2.5 million, Tangerine – 3.2 million, Cortaro Farms- 3.1 million and Ina- 3.7 million.

[4] Projected vehicle delay per day utilizing the most recent projected vpd data are as follows: Cochie Canyon –51.8 hours, Tangerine – 74 hours, Cortaro Farms – 63.5hours and Ina -70.1 hours

Vehicular Delays at Crossings

Based on the current single track configuration, the railroad gave the following response about delay time for vehicles at the crossings in this application. The delay time is measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset.

Delays for vehicular (roadway) traffic caused by trains occupying a crossing depend on the length and speed of each train traversing the crossing. Because each train can be unique for these values it would be impossible for Union Pacific accurately to provide the time of delay for vehicular traffic either while allowing trains to pass the crossing or because trains are stopped in the crossing. With that caveat, Union Pacific responds as follows:

Union Pacific operations are governed by maximum allowable speeds as identified by timetable. Trains at the crossing involved in this application operate at timetable speeds of 65 mph and the average length of trains is approximately 6,000 feet. At that train length and speed, the average delay for vehicular traffic (1) to allow the train to pass at this crossing, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, is approximately 1.549 minutes.

The average time vehicular traffic is delayed (2) due to trains stopped on the track for any purpose, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, varies according to the condition creating the blockage. These varied conditions include mechanical failure such as a broken air hose, a grade crossing accident, or operations such as trains meeting or passing. Given the variety of possible conditions causing trains to be stopped on a crossing, Union Pacific does not catalog the average time vehicular traffic is delayed by stopped trains.

With that caveat, Union Pacific responds as follows: A.R.S. § 40-852 requires that, except in cases of unavoidable accident, a train blocking a crossing for more than 15 minutes must be cut to facilitate traffic flow. ACC Regulation R14-5-104(C) (7) and Union Pacific's operating practices allow a train to block a public grade crossing for no more than 10 continuous minutes, unless the train is continuously moving in the same direction during the entire time it occupies the crossing, or the blockage is caused by wrecks, derailments, acts of nature, mechanical failure, or other emergency conditions.

Based on the railroads double tracking project, and the projected number of 84 trains per day through this crossing by the year 2016, the railroad gave this response as to what future delay times would be for vehicles at the crossings in this application

Delays for vehicular (roadway) traffic caused by trains occupying a crossing depend on the length and speed of each train traversing the crossing. Because each

train can be unique for these values it would be impossible for Union Pacific accurately to provide the time of delay for vehicular traffic either while allowing trains to pass the crossing or because trains are stopped in the crossing. With that caveat, Union Pacific responds as follows:

Union Pacific operations are governed by maximum allowable speeds as identified by timetable. Trains at the crossing involved in this application are projected to operate at timetable speeds of 65 mph and the average length of trains is projected to be approximately 8,000 feet. At that train length and speed, the average delay for vehicular traffic at this crossing in 2016 (1) to allow the train to pass at the crossing, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, is projected to be approximately 1.899 minutes.

The average time vehicular traffic is delayed (2) due to trains stopped on the track for any purpose, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, varies according to the condition creating the blockage. These varied conditions include mechanical failure such as a broken air hose, a grade crossing accident, or operations such as trains meeting or passing. Given the variety of possible conditions causing trains to be stopped on a crossing, Union Pacific does not catalog the average time vehicular traffic is delayed by stopped trains.

With that caveat, Union Pacific responds as follows: A.R.S. § 40-852 requires that, except in cases of unavoidable accident, a train blocking a crossing for more than 15 minutes must be cut to facilitate traffic flow. ACC Regulation R14-5-104(C) (7) and Union Pacific's operating practices allow a train to block a public grade crossing for no more than 10 continuous minutes, unless the train is continuously moving in the same direction during the entire time it occupies the crossing, or the blockage is caused by wrecks, derailments, acts of nature, mechanical failure, or other emergency conditions.

A traffic delay and queuing analysis was performed for this application utilizing formulas found in the Transportation and Traffic Engineering Handbook, Second Edition. This document is published by the Institute of Transportation Engineers (ITE). Using the most current ADT data available, it was determined that the current daily vehicle delays at the crossings are as follows:

Cochie Canyon Road	1.7 hours of delay per day
Tangerine Road	4.1 hours of delay per day
Cortaro Farms Road	11.8 hours of delay per day
Ina Road	15.0 hours of delay per day

Using the most current data regarding projected future ADT and the Railroad's projection of 84 trains per day, it was determined that daily vehicle delays in the year 2030 may be as follows:

Cochie Canyon Road	51.8 hours of delay per day
Tangerine Road	74.0 hours of delay per day
Cortaro Farms Road	63.5 hours of delay per day
Ina Road	70.1 hours of delay per day

Current delays fall well below the FHWA recommended threshold of 40 delay hours per day. Future delays are projected to exceed 40 hours at all four of these crossings. It is very likely that the road authority would entertain some type of roadway improvement project to address the traffic delays before they got to this point. Roadway widening would be one alternative for reducing the delay times for vehicles at the crossing.

Another commonly used measure outlined in the FHWA Guidelines; the so-called Crossing Exposure Index (which is simply the product of the number of trains per day multiplied by the number of vehicles crossing daily) is currently met at Cortaro Farms and Ina Roads. Of the nine criteria, this is the only criteria currently met. It should be noted that the criteria identified in the FHWA material are not mandates, but Guidelines established by the Federal Highway Administration, which serve to alert those having jurisdiction that potential problems may arise.

Grade Separation

With regard to grade separating any of the crossings, the Railroad gave the following response:

Union Pacific understands that whether a grade separation is needed is primarily a question of mobility and convenience for vehicular traffic on the roadway, not safety. That is because an at-grade crossing can be safe without constructing a grade separation and eliminating the grade crossing. Based on this understanding, Union Pacific believes the question of whether a grade separation is needed is irrelevant to Union Pacific's application to add a second mainline track at these grade crossings. With that caveat, Union Pacific responds as follows:

In addition to the foregoing, grade separation is not appropriate for determination at this time because the local communities and roadway authorities have not finally determined whether grade separations at these crossings are desired by those communities and authorities, what priority grade separations would have with respect to other public projects, when construction of grade separations could be begun and finished, and how grade separations would be funded. Union Pacific is aware that the local communities and roadway authorities are studying these matters outside the context of Union Pacific's applications for grade crossing alterations. Specifically, Union Pacific is aware that the Town of Marana is planning grade separation at Ina Road as part of an RTA project)

Furthermore, Union Pacific believes the four crossings involved in this application are safe without constructing grade separations. This conclusion is supported by the fact that the Federal Highway Administration authorizes the use of gates and lights at multiple-track grade crossings as proposed in this application.

In connection with its recent application to upgrade the crossing of Union Pacific tracks at the intersection of Power and Pecos Roads, RR-03639A-07-0398, the Town of Gilbert estimated that a grade separation at that location would cost $22 million. Depending on the particular crossing involved, a reasonable range for the costs of constructing a grade separation would be between $20 million and $40 million.

Staff has utilized the FHWA Guidelines to determine the potential need for grade separation at these crossings. Based on existing conditions, Cortaro Farms and Ina Roads are the only crossings that currently meet at least one of the nine criteria for consideration of grade separation. Projected data indicates that all four crossings may meet at least three of the nine criteria by the year 2030.

Future Tangerine Road Grade Separation

The Town of Marana and ADOT are planning to build a grade separation that will span the I-10 freeway as well as the Union Pacific railroad tracks. It will be located approximately one tenth of a mile to the west of the existing Tangerine Road at-grade crossing. The Town proposes to leave the existing at-grade crossing open at Tangerine Road due to the amount of local business traffic that would be negatively affected by closing the at-grade crossing. The project is anticipated to begin construction in 2010. The total cost for the project, excluding right-of-way acquisitions, now stands at $70 million. The project will be funded through a mix of public and private funds including the RTA sales tax, ADOT and Westcor Developers. Westcor is a major contributor due to the fact that they are building a new shopping mall on the southwest side of I-10 near the proposed Tangerine grade separation. The amounts of the individual contributions were not available to Staff.

Future Ina Road Grade Separation

According to information Staff received from the Pima Association of Governments (PAG) and The Regional Transportation Authority (RTA), the Town of Marana and ADOT have secured funding for a project to construct a grade separation at Ina Road. The funding source is from ADOT and a RTA sales tax. The cost of the grade separation at Ina Road is estimated to be $50,250,000. Currently, construction of the project is estimated to begin sometime between 2010 and 2013 and will be part of a RTA roadway project. No further details are known by Staff at this time.

Crossing Closure

The surrounding areas of these four crossings are highly developed with commercial and industrial businesses. Staff believes closing any of the four crossings would have a negative affect on many of the local businesses. Therefore, Staff would not recommend closure of any of these crossings at this time.

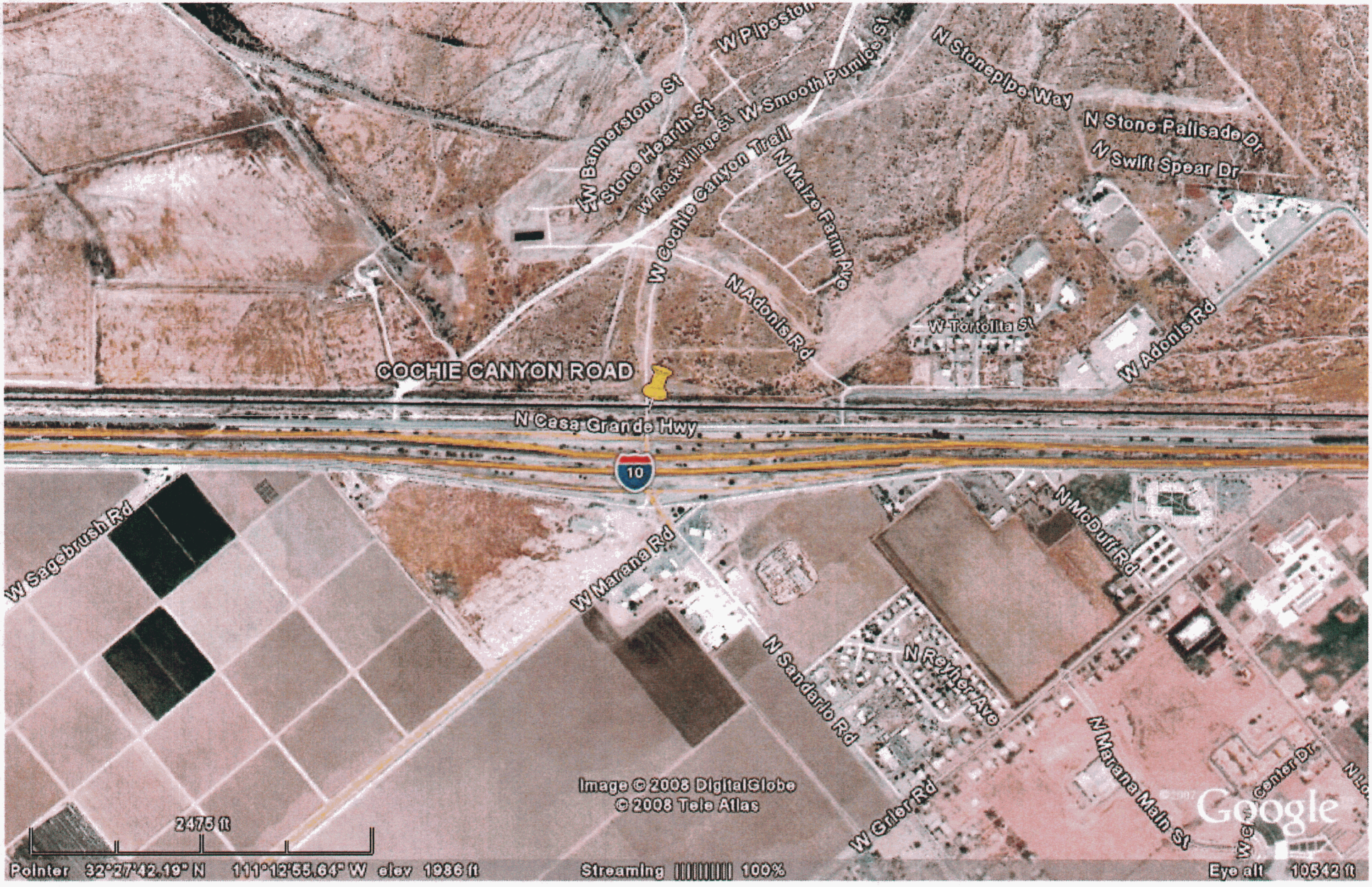
Staff Conclusions

Having reviewed all applicable data, Staff generally supports the Railroad's application. Staff believes that the upgrades are in the public interest and are reasonable. Staff understands that the decision to grade separate is a complex one involving multiple parties, a number of years of time for planning and construction as well as substantial monetary resources. Having said that, Staff believes that the measures proposed by the Railroad are consistent with other similar at-grade crossings in the State and will provide for the public's safety. Therefore, Staff recommends approval of the Railroad's application.

Dave Raber
Director
Safety Division

Brian H. Lehman
Railroad Supervisor
Safety Division

Appendix "A"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N Adonis Rd
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Pointer 32°27'42.19" N 111°12'55.64" W elev 1986 ft
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TANGERINE ROAD
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Cortaro Farms
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W Calle Paint
W Calle Appaloosa
W Pima Farms
W Wasson Ave
Hardy Rd
Acre Dr
N Joplin Ln
CORTARO FARMS ROAD
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N Cracker Barrel Rd
W Arizona Pavilions Dr
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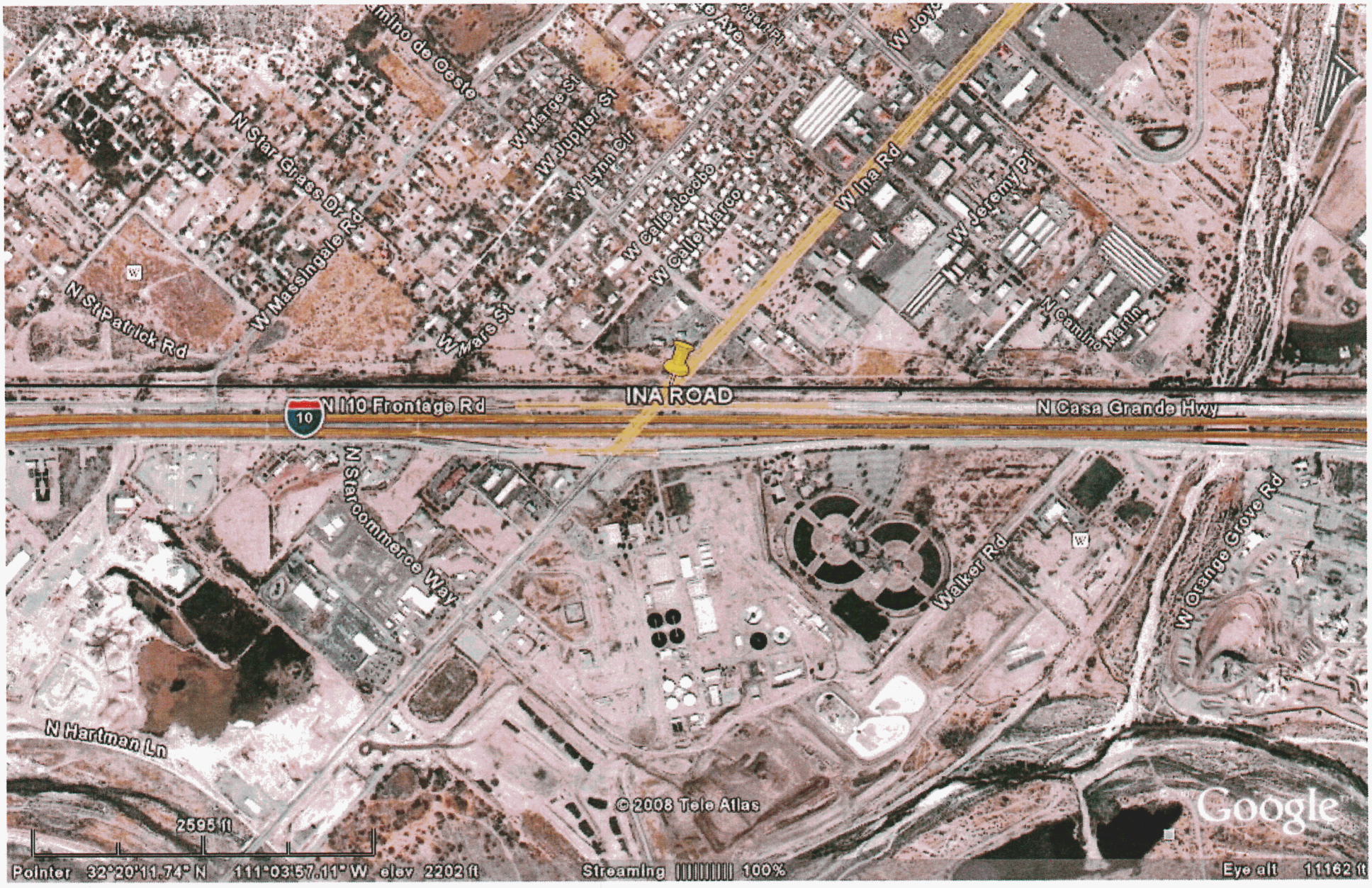
Streaming 100%
Eye alt 11162 ft


W Camino de Oeste
N Star Grass Dr
W Massingale Rd
W Marge St
W Jupiter St
W Lynn Cir
W Calle Jacobo
W Calle Marco
W Ina Rd
W Jeremy Pl
N Camino Martin
N St Patrick Rd
W Mars St
INA ROAD
10
N I10 Frontage Rd
N Casa Grande Hwy
N Starcommerce Way
Walker Rd
W Orange Grove Rd
N Hartman Ln
© 2008 Tele Atlas
Google
2595 ft
Pointer 32°20'11.74" N 111°03'57.11" W elev 2202 ft
Streaming 100%
Eye alt 11162 ft

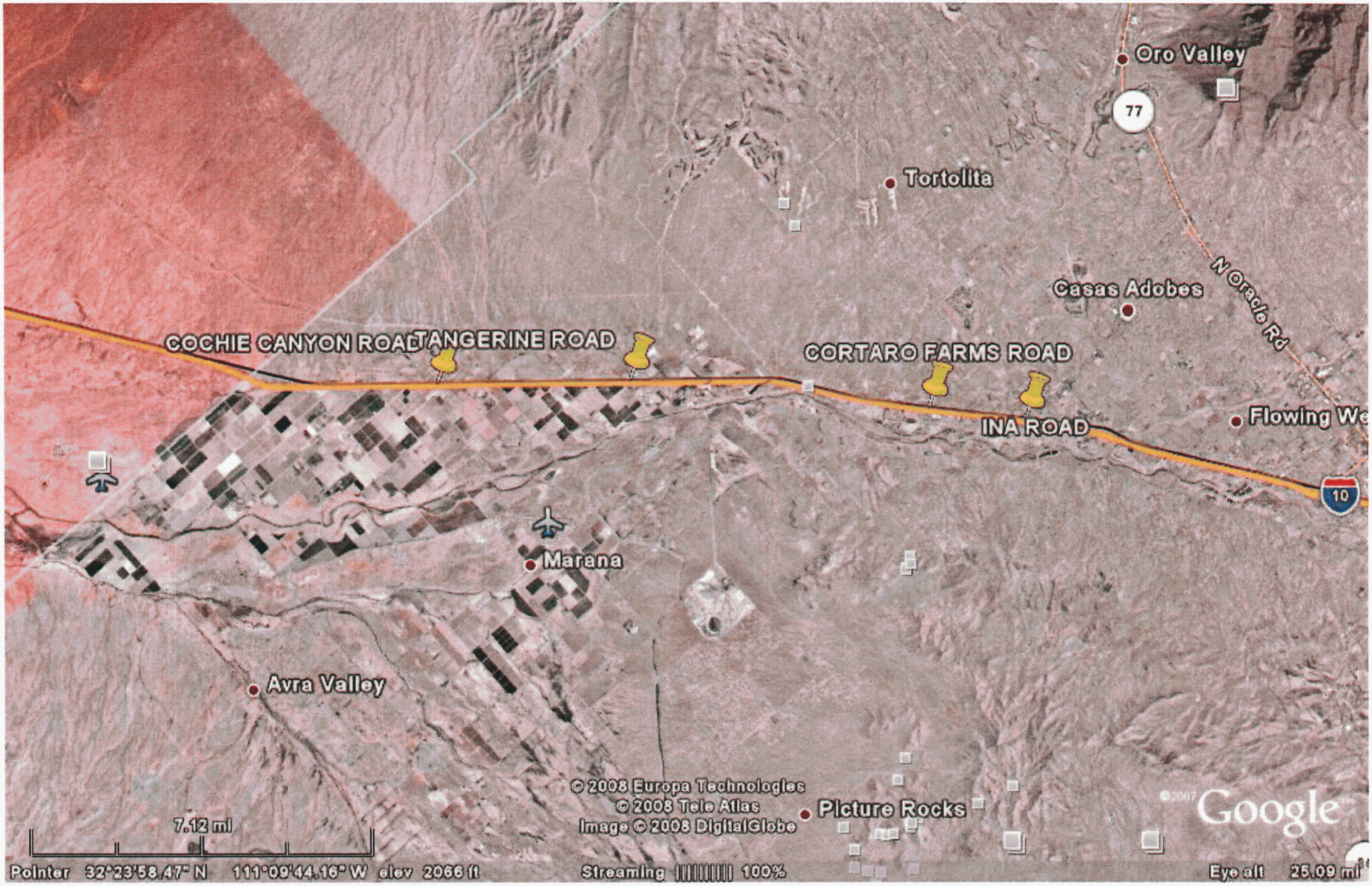

Oro Valley
77
Tortolita
N Oracle Rd
Casas Adobes
COCHIE CANYON ROAD
TANGERINE ROAD
CORTARO FARMS ROAD
INA ROAD
Flowing We
10
Marana
Avra Valley
Picture Rocks
© 2008 Europa Technologies
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Image © 2008 DigitalGlobe
©2007 Google
7.12 mi
Pointer 32°23'58.47" N 111°09'44.16" W elev 2066 ft
Streaming 100%
Eye alt 25.09 mi

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__26th__ day of __September, 2008 with:

Docket Control
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Copy of the foregoing mailed
this 26 day of Sept., 2008 to:

Aziz Aman P.E.
Union Pacific Railroad
2073 E Jade Dr.
Chandler, AZ. 85286

Anthony J. Hancock, Esq.
Terrance L. Sims, Esq.
Beaugureau, Zukowski & Hancock, P.C.
302 East Coronado
Phoenix, Arizona 85004
Attorney for Union Pacific Railroad Company

Robert Travis, PE
State Railroad Liaison
Arizona Department of Transportation
205 S 17th Ave, Room 357
MD 618E
Phoenix, AZ 85007

Michael A. Curtis
William P. Sullivan
Curtis, Goodwin, Sullivan, Udall & Schwab, P.L.C.
501 E. Thomas Road
Phoenix, Arizona 85012-3205
Attorneys for Cortaro-Marana Irrigation District

Albert Letzkus, P.E. PTOE
Division Manager, Traffic Engineering
Pima County
1313 S. Mission Road
Tucson, Arizona 85713-1398

Keith Brann
Town Engineer, Assistant Director of Public Works
City of Marana
11555 W. Civic Center Drive
Marana, Arizona 85653-7007

Bob Roggenthen, P.E.
Traffic Engineering Division
Pima County Department of Transportation
1313 S. Mission Road
Tucson, Arizona, 85713-1398

Jim Glock
City of Tucson Department of Transportation
201 N. Stone Ave., 6th Floor, North Wing
P.O. Box 27210
Tucson, Arizona 85726-7210

Andre C. Dinauer
Engineering Administrator, Engineering Division
City of Tucson Department of Transportation
201 N. Stone Ave., 3rd Floor
Tucson, Arizona 85726-1207